LCA Administration Advanced (4)

DMC RADE Tools

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DMC RADE Tools

Objectives of the Course

In this course, we will learn how to customize the Data Model using using the CAA-Data Model Customizer

Targeted audience

ENOVIA LCA Administrator

120 min

Prerequisites:

CAA V5 Programming

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Table of Contents (1/2)

3

Table of Contents (2/2)

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Planning

In this course, you will see CAA V5 RADE Tools for Data Model Customizer

- Administration Concepts
- Environment Development / MsDev Plug ins
- Rational Rose
- New ENOVIA Applications: Document and Action
- Publish Shell
- Update Database
- DMC without RADE

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Administration Concepts

You will become familiar with the Administration Concepts
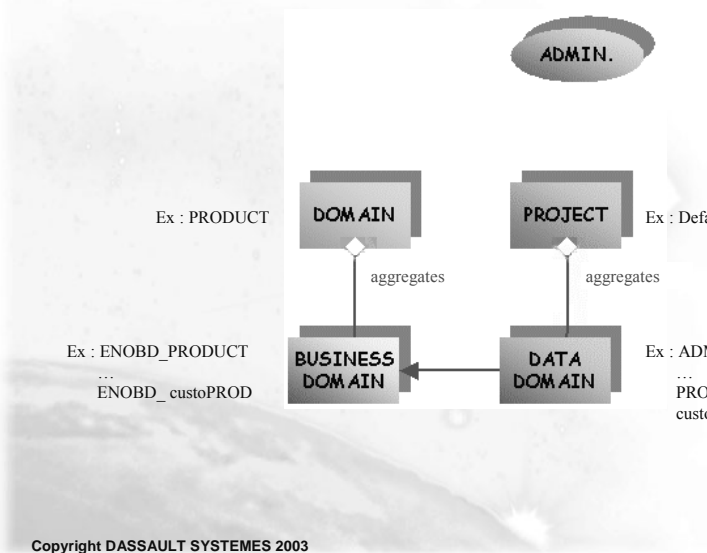
- Presentation
- Global Schema
- Domain / Business Domain Definitions
- Data Server / Data Domain Definitions
- Project & Roles Definitions
- Authorized customizing Modeler
- Methodology Overview of the Customization

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Presentation

🔹 **The following diagram introduces the main concepts involved in Project Management. It's described by the VPMAdm.adm file.**

Global Schema
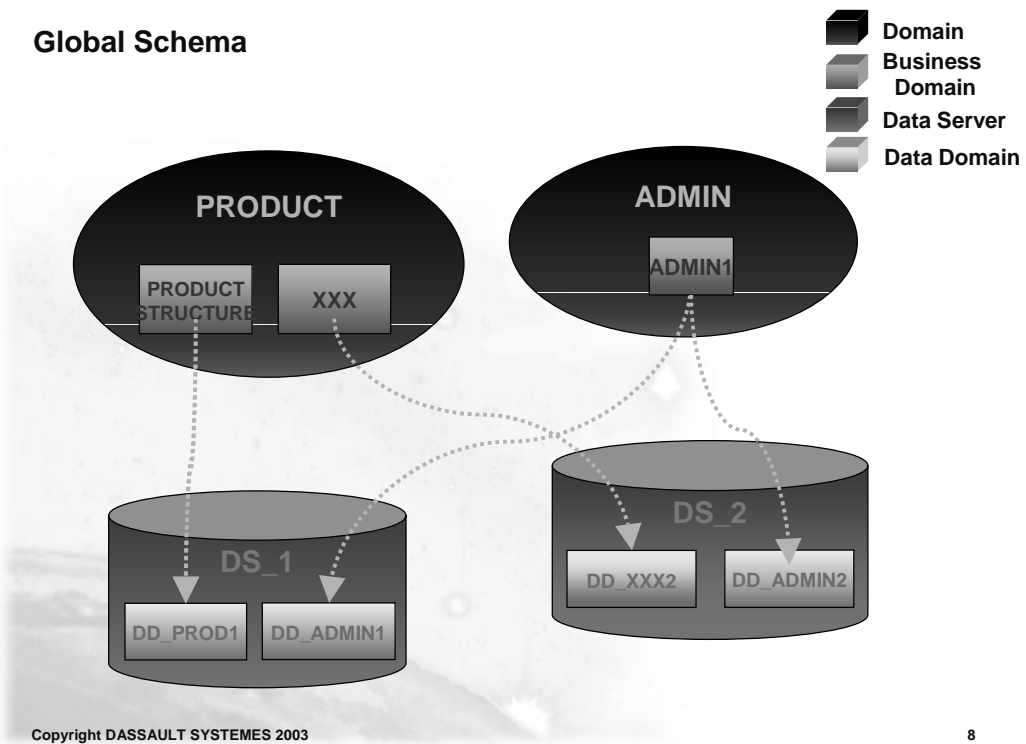
Domain / Business Domain Definitions

- **Domain**
  - **Identifies an ENOVIA application, so corresponds to a modeler**
    - Product Structure for instance
  - **Gathers all the customizations of the associated data schema (Package)**

- **Business domain**
  - **Define by the .metadata**
  - **Particular customization of a Domain**
  - **A Domain aggregates several Business Domains. But a Business Domain corresponds to an unique Domain.**
    - Associated Business rules
    - Associated Status Graphs

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Data Server / Data Domain Definitions

- **Data Server**
  - **Data repository**
  - **Corresponds to a string connection (alias in DB2 catalog, or tnsname.ora for Oracle)**
  - **Database instance for example**

- **Data Domain**
  - **Instantiation of a Business Domain within a particular Data Server, so is a kind of persistent view. A Business Domain can be located in several Data Domain (in theory)**
  - **In V5R7, an Environment is equal as a Data Domain**

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Project & Roles Definitions

🔹 **Project :**

A group of Data Domains. You can define as many projects as you want. A default project (called 'DefaultProject') containing all the installed modelers is provided with ENOVIA LCA.

🔹 **Roles**

The roles manage the users access to the database (have a look on the P&O)

Authorized customizing Modeler

The different Modeler to be customized are :

🔹 **PRODUCT (Product Structure)**
- VPMItemInstance
- VPMPartMaster
- VPMPartVersion
- VPMProductRootClass

🔹 **DOCDIR (Document)**
- VPMDocSecuredFile
- VPMDocumentIteration
- VPMDocumentIterationFormat
- VPMDocumentRevision
- VPMTPDocumentMaster

🔹 **APLAFL (Actions)**
- Action_Deliverable
- Action_Documentation
- Action_Manufacturing
- Action_PenetrationRequest
- Action_SignOff

🔹 **APLECO (ECOECR)**
- ECO
- ECR

Authorized customizing Modeler

- **CONFIG**
  - Category
  - Specification
- **STDPART (Standard Part)**
  - VPMDocSecuredFile
  - VPMDocumentIteration
- **Object from scratch**
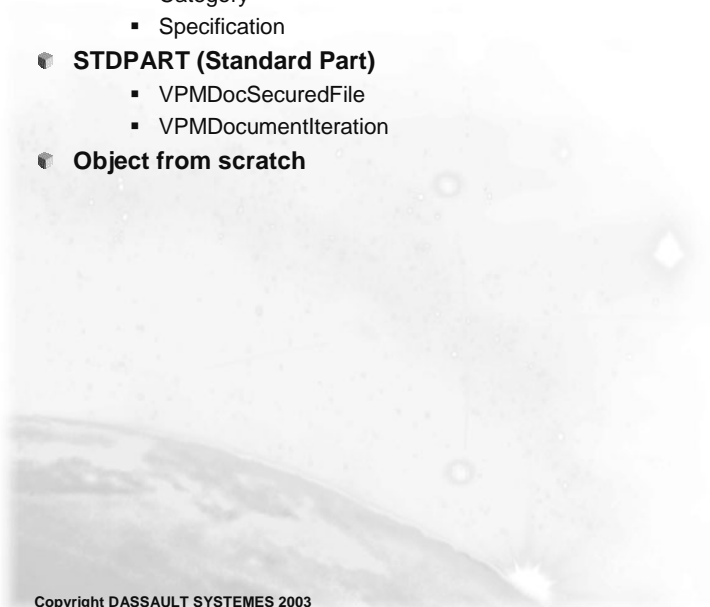
Methodology Overview of the Customization

Express, Library, ddl, Business Domain generation

6 **Update Database**

GenBigSchema
PR050DDL
LoadAdmin
Unix Prereq

5 **Publish Shell**

.metadata
.dic
customized

4 **Unix Prerequisites**

Standard
.metadata
Framework

3 **Rational Rose**

NT Prerequisites

Workspace

2 **New ENOVIA Application**
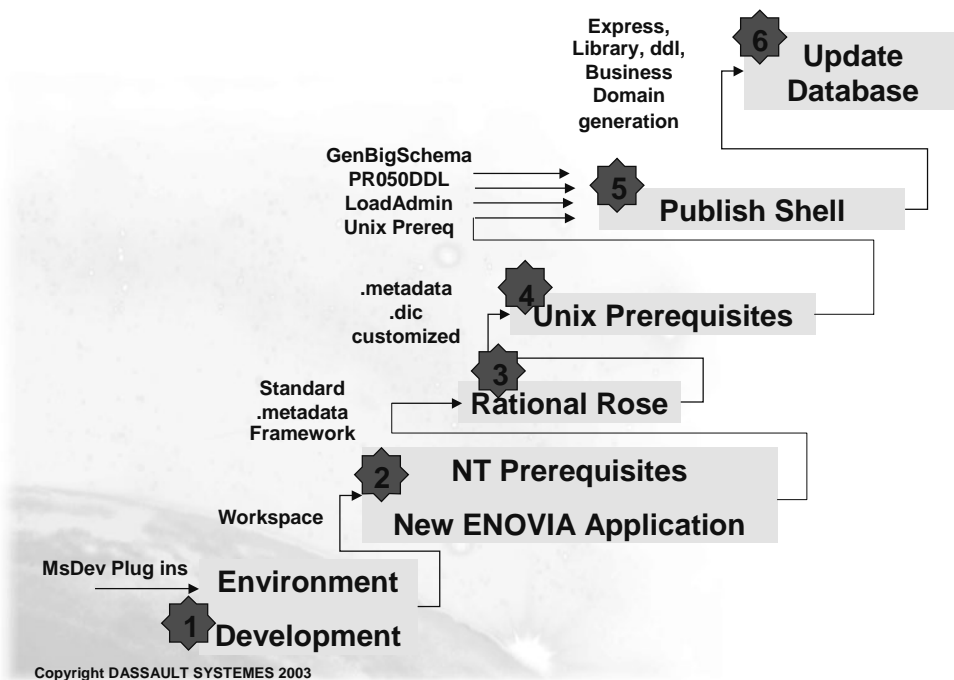
MsDev Plug ins

Environment

1 **Development**

Environment Development / MSDev Plug ins

You will become familiar with CAA V5 RADE Tools

- **New CAA V5 Workspace**
- **Tool level / UNIX Connection**
- **Create a new Framework**
- **NT Prerequisites**
- **New ENOVIA Application : Product Structure**

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New CAA V5 Workspace

1

➡ *Create a CAA V5 Workspace using the MsDev Wizards*
Equivalent to the mkdir Unix Command

```
Microsoft Visual C++
File  Edit  View  Insert  CAAV5 Wor
  New...              Ctrl+N
  New CAA V5 Workspace...
  Open...             Ctrl+O
  Close
  Open Workspace...
  Open CAA V5 Workspace...
  Save Workspace
  Close Workspace
  Save               Ctrl+S
  Save As...
  Save All
  Page Setup...
  Print...            Ctrl+P
  Recent Files            ▶
  Recent Workspaces       ▶
  Exit
```
Build / Debug \ Find in Files 1 \ Find in Fil
NewCNextWS
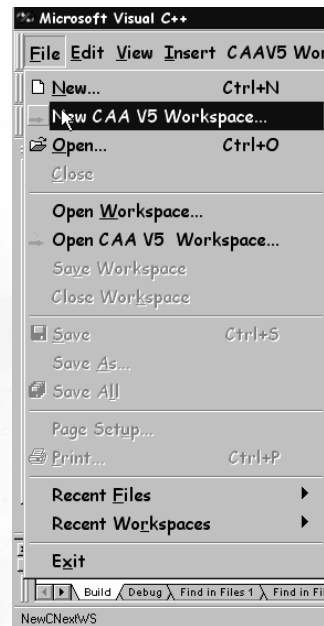
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Tool level / UNIX Connection

1

Inform:

- **the Tool level**
- **the UNIX connection**

Create a new Framework

1

Define Prerequisite Workspace

NT Prerequisites

2

All the standard metadata files will be copied from the UNIX to the NT machine
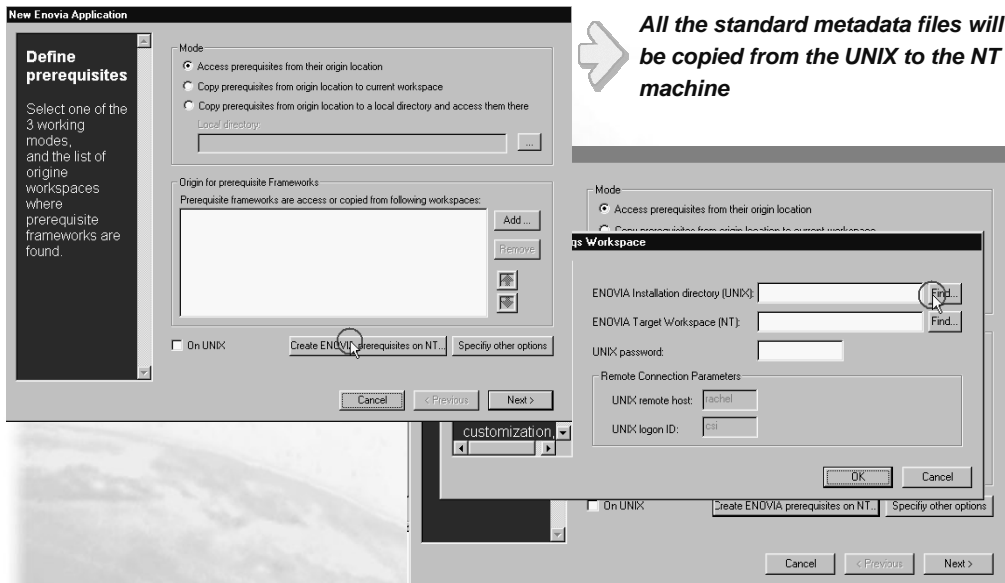
New ENOVIA Application : Product Structure

2

At this end of this step, the file tree is automatically generated with:

➢ *PublicInterfaces*
➢ *IdentityCard*
➢ *CNext*

And additionally:

➢ *UML model directory*

Rose is automatically launched so you can define your UML design
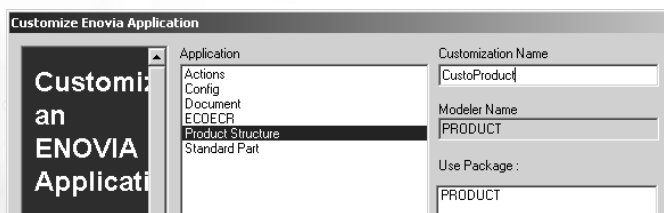
New Enovia Metadata

🐚 **The new ENOVIA Metadata RADE plug-in is used to create a new modeler object from scratch.**
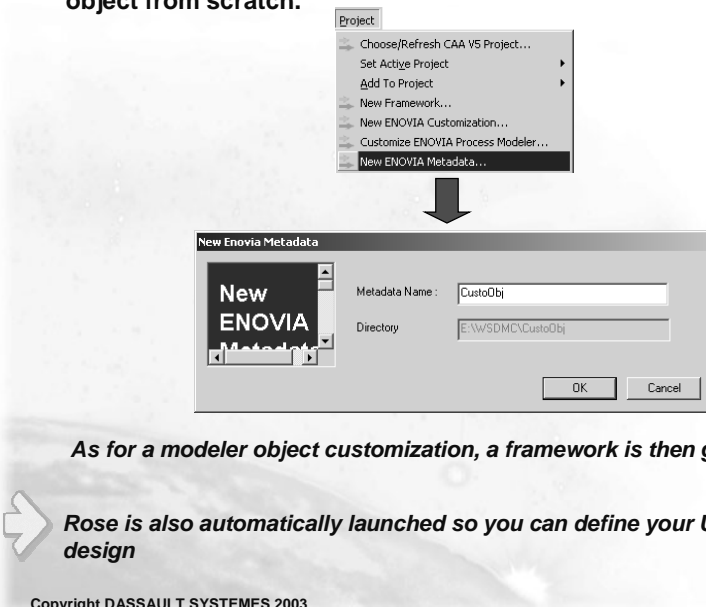
As for a modeler object customization, a framework is then generated

Rose is also automatically launched so you can define your UML design

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Rational Rose

You will become familiar with the UML Representation

- 🖭 **Presentation**
- 🖭 **UML Static Representation**
- 🖭 **Generate**

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Presentation

The application's method recommends the use of static and dynamic views of a logical model and a physical model to capture the in-process products of object-oriented analysis and design. Using the notation, the application enables you to create and refine these views within an overall model representing your problem domain and software system.

This overall model contains classes, use cases, objects, logical packages, operations, component packages, components, processors, devices and the relationships between them. Each of these model elements possesses model properties that identify and characterize them. The notation provides graphical icons to represent each kind of model element and relationship.

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Modeler Object creation

- Rose add-ins allow to create new modeler Objects inheriting from existing ones or modeler object from scratch depending on you have chosen to perform a New Enovia Customization or to create a new metadata.

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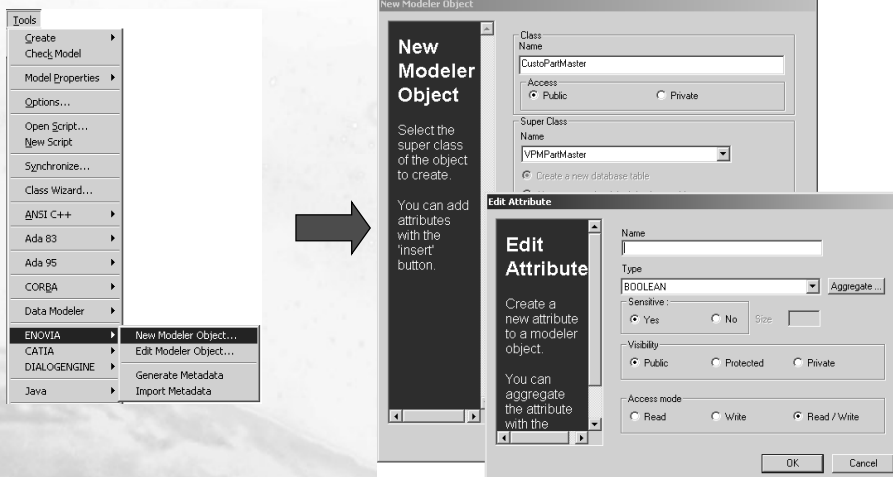
UML Static Representation

3

The Classes are represented graphically as boxes. Under parentheses, the Super class is indicated.

The list of the attributes of a Class is represented like a little blue box, followed by the attribute type. The right access on the attributes can also be precised (for instance ReadWrite).

The inheritance between classes are designed with an arrow

Such a UML representation is called the Static representation.
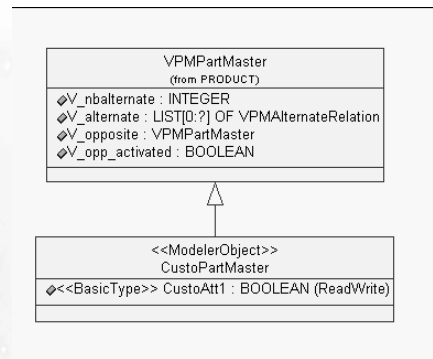
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Generate

3

➤ **When you have finished the UML representation, use the « Generate » Rose add- ins to generate the .metadata and .dic files**

➤ *Close Rational Rose*
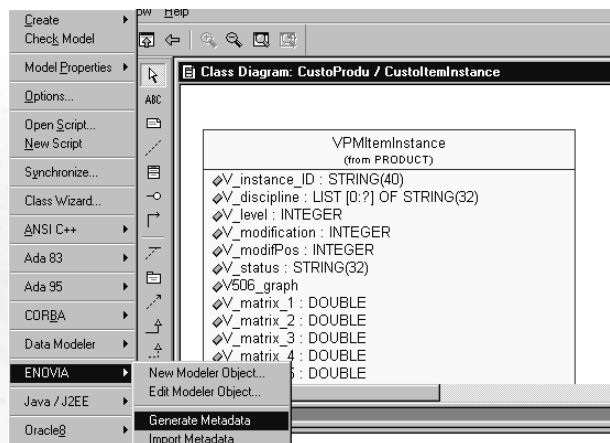
➤ **Equivalent to manually create your own .metadata file containing your new entities.**

To generate the uuid, use the Uuidgen.exe provided by MsDev (open a DOS window,launch uuidgen)

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New ENOVIA Applications:
Document / Object From scratch

You will become familiar with CAA V5 RADE Tools

- ▭ **Document**
- ▭ **Action**
- ▭ **UNIX Prerequisites**

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New ENOVIA Application : Document
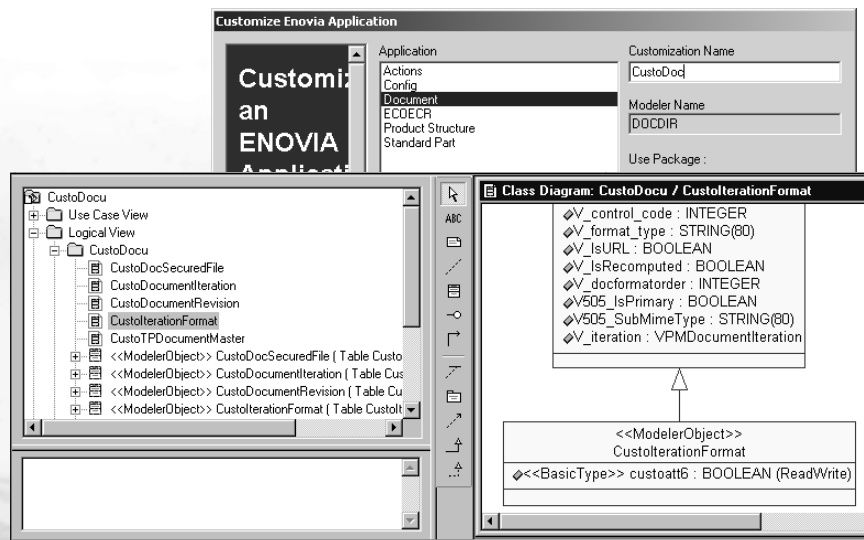
Design in Rational Rose your UML Representation for the Action
Generate the metadata
Close Rational Rose

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New ENOVIA Application : Object From Scratch

In MSDEV Project menu choose "New Enovia metadata"

Project
- Choose/Refresh CAA V5 Project…
- Set Active Project ▶
- Add To Project ▶
- New Framework…
- New ENOVIA Customization…
- Customize ENOVIA Process Modeler…
- New ENOVIA Metadata…

New Enovia Metadata

New ENOVIA Metadata

Metadata Name : CustoObj

Directory E:\WSDMC\CustoObj

OK   Cancel

Design in Rational Rose your UML Representation for the Document
Note that you cannot inherit from another entity
Generate the metadata

Rational Rose - CustoObj - [Class Diagram: CustoObj]
File Edit View Format Browse Report Query Tools Add-Ins Window Help

CustoObj
- Use Case View
- Logical View
  - CustoObj
    - Class Diagram: CustoObj
    - <<ModelerObject>> CustoEntity (Table
      - <<BasicType>> Att1
      - <<BasicType>> Att2
      - <<BasicType>> Att3
      - <<BasicType>> Att4

<<ModelerObject>>
CustoEntity
◇<<BasicType>> Att1 : BOOLEAN (ReadWrite/Sensitive)
◇<<BasicType>> Att2 : DATE (ReadWrite/Sensitive)
◇<<BasicType>> Att3 : DOUBLE (ReadWrite/Sensitive)
◇<<BasicType>> Att4 : STRING(32) (ReadWrite/Sensitive)

For Help, press F1   NUM
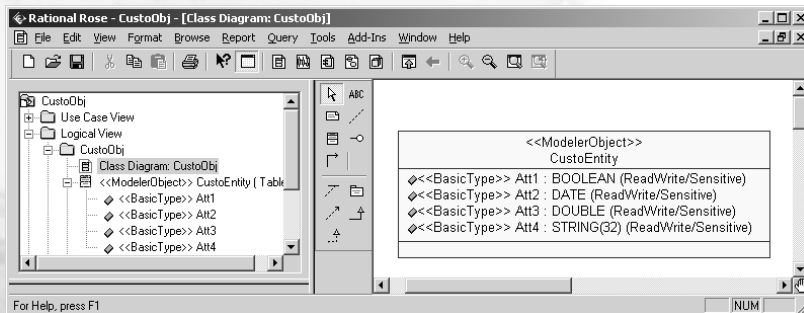
Close Rational Rose

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UNIX Prerequisites

4

Refresh your project

WSDMC - Microsoft Visual C++
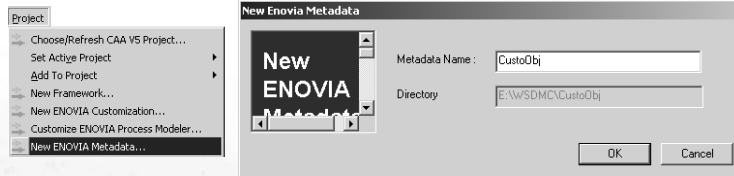File Edit View Insert CAAV5 Workspace Project Build Source Code Manager Tools W

(Globals)   (All global mem

Workspace 'WSDMC': 3 project(s)
- CustoDoc files
- CustoObj files
- CustoProd files

Project
- Choose/Refresh CAA V5 Project…
- Set Active Project ▶
- Add To Project ▶
- New Framework…
- New ENOVIA Customization…
- Customize ENOVIA Process Modeler…
- New ENOVIA Metadata…
- New Module…
- Copy Framework…
- Dependencies…
- Settings…   Alt+F7
- Export Makefile…
- Insert Project into Workspace…

Locate and define the UNIX Prerequisites
Equivalent to the make command:
mkGetPreq –p $CURRENT_WS

WSDMC - Microsoft Visual C++
File Edit View Insert CAAV5 Workspace Project Build Source Code

(Globals)

- Locate Prerequisite Workspaces…
- Define Prerequisite Frameworks…
- Create/Update Runtime View…
- Generate/Update Documentation…
- Check Source Files…
- CAA V5 Object Browser…
- Unix Connection…

Workspace 'WSDM
- CustoDoc file:
- CustoObj files
- CustoProd files

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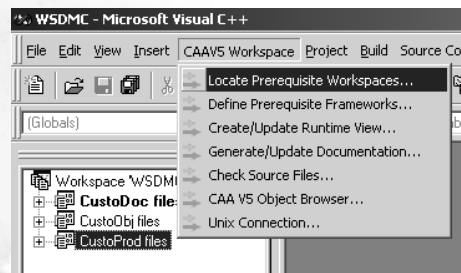
Publish Shell

You will become familiar with the Data Model Generation

- **Launch the Publish Shell for the Product**
- **Launch the Publish Shell for the Document**
- **Launch the Publish Shell for the Action**
- **Update the Run Time View**
- **Express Generation**
- **Library Generation**
- **ddl Generation**

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Launch the Publish Shell for the Product

Launch the Publish Shell

Fill in some parameters

If you set "Simulate Mode" to "Yes", the database is not modified. It is for test purpose or just if you want to generate files for a further manual installation or deployment

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Update the Run Time View

5

The Publish Shell also updates the Run Time View

Equivalent to the UNIX command :
mkrtv

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Express Generation

5

The Publish shell generates the .express file using the .metadata previously created

Keep in mind:

Manually , you would have used the GenBigSchema .sh shell without forgetting to put all the metadata files mentioned in the shell (including your new ones) on the directory:

$CURRENT_FW/Cnext/code/dictionary

The express schema then generated in the $CURRENT_FW/ProtectedInterfaces

```
GenBigSchema.sh -l TEMPLAT CATArrangement CATPlantShipModeler DOCDIR
ENOFdtSch ElectricalDictionary ElectricalExtensions GRAPH MBOM PROCESS
PRODUCT Tol CATEquipment CATInstrument CATPiping STDPART XXX -n
ENOTemplateSch -diri $CURRENT_FW/CNext/code/dictionary -diro
$CURRENT_FW/ProtectedInterfaces
```

Where XXX is your metadata file name

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Library Generation

5

The Publish shell generates the libraries

Equivalent to:

Compile your framework: mkmk –a

Then you have generated the libXXXSch.a files under $RUN_VIEW /aix_a/code/bin

NB : "xxx" stands for "ENO" + the name of the parent domain for a standard modeler customization, or directly the name of the created domain if the new object inherits from nothing.

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ddl Generation (1/3)

5

The Publish shell generates the ddl files

Equivalent to manually:

Under the CNext directory, create a reffiles directory, then a ddl one. This directory will receive the .sql (or .clp) files generated.

Then you have to call the PR050DDL shell from the Run Time View

• The PR050DDL shell uses the split files :*.param. These files specify which entity is considered as root of a new tree so that a new table is created to improve performance algorithms.

• Be careful to save the original .sql files

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ddl Generation (2/3)

5

```
PR050DDL ENOTemplateSch -oracle -df X –P $CURRENT_FW/map/ -m TEMPLAT
DOCDIR  ElectricalDictionary  ElectricalExtensions  GRAPH  MBOM  PROCESS
PRODUCT Tol XXX STDPART -n $USER_DBO -T $TABSPACE_DBO -I $TABSPACE_IX_DBO
-s              $USER_DBO        –spdir              $CURRENT_WS
/$OS/reffiles/DBMS/Generator:$RUN_VIEW/$OS/reffiles/DBMS/Generator
```

X: name of the .sql file generated

XXX: name of the customer metadata

You need to export several environment variables before performing the ddl generation.

ENOVDatabaseType → DB2 or ORACLE

ENOVDB2Home   → (if you use a DB2 SGBD) DB2 home directory

ENOVOracleHome   → (if you use an Oracle SGBD) Oracle home directory

ENOVDBAID   → the owner of the tables

ENODBAPSSD   → tables owner's UNIX password

ENOVTableSpace   → the table space

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---

ddl Generation (3/3)

```
Under the Tool installation :/$OS/code/bin, launch the following
executable:
(update the environment using tck_init and tck_profile)


CATVBTSQLParserM  ENOTemplateSch_ create.sql  TEMPLAT.sql ENOTemplateSch_ update.sql
```

This executable will generate you the ENOTemplateSch_ update.sql with the new tables to create.

The database will not be dropped, it will be altered to add the new tables

```
Where:
```

ENOTemplateSch_ create.sql: previously generated

TEMPLAT.sql from the installation (don't forget to change the owner of the tables) or the last customization before this one

ENOTemplateSch_ update.sql : output

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Update the Database

You will become familiar with CAA V5 RADE Tools

- ▭ **ddl files Execution**
- ▭ **Manual Update**
- ▭ **Create a new Environment**
- ▭ **Updating the Project**
- ▭ **Updating the Domain**
- ▭ **Updating of the database administration**
- ▭ **Updating the search Entities Definition**

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ddl files Execution

6

The Publish shell executes the ddl files generated if you are not in a simulation mode

It is equivalent to manually execute the generated ddl files directly from your database sql command interpreter.

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Create a new Environment

6

⇨ **The Publish shell creates a new environment that is to say a new Business Domain. This name corresponds to the name of the framework.**

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Updating the Project

6

Equivalent to manually:

Edit the VPMAdmin.adm file, delivered on the unload under ../$OS/code/dictionary.

<u>**Add the new Data Domain in the Default Project:**</u>

```
<PROJECT
        Name="DefaultProject"
        Oid="ENOP_default"
><DATARDB
        Name="ADMIN"
        AliasName="ADMIN"
        Oid="ENODR_ADMIN"
        OwnerDico="VPMADM"
        BusinessDomain="ENOBD_ADMIN"
></DATARDB ><DATARDB
...
></DATARDB><DATARDB
        Name="XXX"
        AliasName="XXX"
        Oid="ENODR_XXX"
        OwnerDico="Adminuser"
        BusinessDomain="ENOBD_XXX"
></DATARDB></PROJECT>
```

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Updating the Domain

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Add a new Business Domain XXX to the Domain :

```
<DOMAIN
            Name="PRODUCT"
            Visible="Y"
            Oid="ENOD_PRODUCT"
><BUSINESSDOMAIN
            Name="PRODUCT"
            MetaDataName="PRODUCT"
            Editor="VDefault"
            EnoviaFlag="Y"
            DataModeler="SDM"
            Loadable="N"
            Parameter="VPMPRODUCT"
            Oid="ENOBD_PRODUCT"
            SchemaName="ENOTemplateSch"
></BUSINESSDOMAIN><BUSINESSDOMAIN
…
></BUSINESSDOMAIN><BUSINESSDOMAIN
            Name="XXX"
            MetaDataName="XXX"
            Editor="VDefault"
            EnoviaFlag="Y"
            DataModeler="SDM"
            Loadable="N"
            Parameter="VPMPXXX"
            Oid="ENOBD_XXX"
            SchemaName="ENOTemplateSch"
></BUSINESSDOMAIN></DOMAIN>
```

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Updating of the database administration

6

Save in database the settings:

The publish script set the customized environment then execute the load admin command

$RUN_VIEW/$OS/code/bin/LoadAdmin $CURRENT_FW/CNext/code/dictionary/VPMAdmin.adm

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Updating the search Entities Definition

6

RADE update the SearchEntitiesDefinition.xml file :

Under $CURRENT_FW/CNext/code/dictionary :

RADE adds the new entities in order to get this entities in ENOVIA LCA search CATLet

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DMC without RADE

You will learn how to use the customized files generated by RADE to customize the same Data Model without RADE installed on another Server

- ☐ ENOVOutputDirectory
- ☐ ddl execution
- ☐ LoadAdmin
- ☐ Masks
- ☐ Environment

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Publish generated files

- After a RADE publish, all the necessary files for manual DMC execution are stored in the $CUSTODir/$OS/code directory and its subdirectories :

  - **in bin subdirectory :**
    - All libraries (libxxxSch.a)
  - **in dictionary subdirectory**
    - *.dico
    - *.metadata
    - VPMAdmin.adm
    - *.custo
  - **In reffiles/DBMS/ddl subdirectory**
    - all ddl files (.sql or .clp depending on your SGBD)

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ddl execution

- **Ddl scripts execution :**
  - Be careful, you may have to edit the generated ddl files to change the owner of the tables (it will be the case if database owners are different in development and installation environments)
  - The right order for ddl scripts execution is UPDATE, INSERT and then GRANT
  - So, for each modeler or totally new object ("xxx") follow this procedure :

    - DB2 :
      log in as db2adm
      db2 connect to *databasename* user *ownertableid* using *ownertablepassword*
      db2 –tvf $CUSTOName/$OS/reffiles/DBMS/ddl/xxxSch_update.clp
      db2 –tvf $CUSTOName/$OS/reffiles/DBMS/ddl/xxxSch_insert.clp
      db2 –tvf $CUSTOName/$OS/reffiles/DBMS/ddl/xxxSch_grant.clp

    - ORACLE :
      Connect to SQL+
      lplus (sqlplus, then su ownerdatabase)
      @ $CUSTOName/$OS/reffiles/DBMS/ddl/xxxSch_update.sql
      @ $CUSTOName/$OS/reffiles/DBMS/ddl/xxxSch_insert.sql
      @ $CUSTOName/$OS/reffiles/DBMS/ddl/xxxSch_grant.sql

You can check that the table creation commands are included in the update file

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Environment variables setup

- The first thing is to load the runtime environment in order to make easier commands use through the DMC process. Change to **$RUN_VIEW/$OS/code/command** directory on the server, then execute the following command line :

  catstart –env ENOVIA_LCA.V5R10.B10 –direnv /CATEnv –run ksh

- Then create a $HOME/CustomEnv file to refer to your customization :

  DIC=$OS/code/dictionary
  BIN=$OS/code/bin
  CAT=aix_a/resources/msgcatalog
  export PATH=$CUSTOName/$bin:$PATH
  export LD_LIBRARY_PATH=$CUSTOName/$BIN:$LD_LIBRARY_PATH
  export LIBPATH=$CUSTOName/$BIN:$LIBPATH
  export SHLIB_PATH=$CUSTOName/$BIN:$SHLIB_PATH
  export CATDictionaryPath=$CUSTOName/$DIC:$CATDictionaryPath
  export CATMsgCatalogPath=$CUSTOName/$CAT:$CATMsgCatalogPath
  export CATInstallPath=$CUSTOName/$OS:$CATInstallPath

- Then, launch it from the command line.
  - . $HOME/CustomEnv
- The commands described in the next steps have to be executed from the current command interpreter, so that you don't have to use catstart

  So, be careful, you have to achieve this step on each xterm you plan to use !

LoadAdmin

Load the new Environment:
LoadAdmin *$VPMAdminPath*/VPMAdmin.adm

$VPMAdminPath= $CustoDir/$OS/code/dictionary

Masks

Update the DEFAULT MASK with :

VPMPeopleUpdate –m

→ **Update automatically all the .custo files of the Runtime View checking consistency**

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To Sum Up

In this course you have seen :

- Methodology to customize the Data Model using RADE Tool
- Publish Shell
- Administration Concepts : Business Domain, Data Domain…

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